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| 09/775,373 | 02/01/2001 | John M. Harris | CE08347R | 7774 |

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| EXAMINER | |
|---|---|
| MACE, BRAD THOMAS | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2663 | |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/775,373 | HARRIS ET AL. | |
| | Examiner | Art Unit | |
| | Brad T. Mace | 2663 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,7,10,12,15,16 and 19* is/are rejected.

7)☒ Claim(s) *2-5,8,9,11,13,14,17,18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/1/01* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract exceeds 150 words.

2. The disclosure is objected to because of the following informalities: lines 23-25 of pg. 5 states that communication channel 107 "is created by routing the data transmission through numerous devices and over a variety of types of transmission lines", however RF forward 104 is a part of communication channel 107 and routed wirelessly, not over a transmission line. The specification does not explain as to what "SDU" stands for. Appropriate correction is required.

### *Drawings*

3. The drawings are objected to because reference 107 appears to be labeling the same thing as reference 108 in Figure 1. Reference 107 should be labeled clearer. The output data queue 116 in Figure 2 should have an arrow leading from the processor to it, rather than from the queue to the processor. In Figure 3 step 209, the ")" should

be "*". In Figure 4 step 309, the ")" in between $S_n$ and d should be "*" and the ")" after d should be removed. Lines 4-6 of paragraph [0018] in the specification state that the initial data rate of bearer data 109 is equivalent to the link width 108, however Figure Figure 1 does not show this. Also should 109 be the same as 108 at the area of the bottleneck 110? Lines 18-26 of paragraph [0018] in the specification state that 109 remains at the bottleneck link speed, however, Figure 1 shows 109 increasing in speed from the bottleneck link speed. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claim 16 is objected to because of the following informalities: In claim 16, does the word "also" mean that claim 16 should be dependent upon claim 15? Otherwise the word "also" should be deleted. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 10, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,393,012 (Pankaj).

Regarding claim 1:

7. Pankaj discloses a method for transmitting data packets from an output queue to a wireless mobile device across a forward radio frequency link (see Figure 2A, reference 24, where the packet network interface provides packets to the data queue 40. The data queue outputs the packets to be transmitted to a wireless device across forward radio frequency link 50) of an associated spread-spectrum communications system (col. 5, lines 44-50, where the interleaved packet is covered with a Walsh code, and spread with the short PNI and PNQ codes. The spread data is provided to RF unit and the forward link signal is transmitted over the air through the antenna.). Pankaj discloses determining a weighted average level of the output queue while transmitting a

data packet at a first data rate (col. 9, lines 18-25, where a process is performed for updating the weights of the queues. The first instantaneous rate (transmitting data packets at a first data rate) of the weighted/selected queue is determined, hence a weighted average level of the output queue is determined since an instantaneous rate is associated with weight of the queue as indicated by col. 10, lines 6-9), transmitting a subsequent data packet at a second data rate (second instantaneous rate) that is lower than the first data rate when the weighted average level of the output queue is below a low threshold value (col. 9, lines 31-38, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue does not exceed the threshold (average rate of all the queues), hence the weighted average level of the output queue does not exceed the threshold's weighted average level of all the queues, the weight of the queue is incremented by a higher value preferably a multiple of "G" where G can be chosen to enhance the overall efficiency of the forward link, col. 9, lines 39-67 through col. 10, lines 1-5, thus G can be chosen to yield a second data rate that is lower than the first data rate, thus when the weight of the output queue has been updated with the G value, a second instantaneous rate is created), and transmitting a subsequent data packet at a third data rate that is higher than the first data rate when the weighted average level of the output queue is equal to or above a high threshold value (col. 9, lines 25-31, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue exceeds the threshold (average rate of all the queues), hence the weighted average level of the output queue exceeds the threshold's

weighted average level of all the queues, the weight of the queue is incremented by a lower value, the number representing the quantity of data to be transmitted during the subsequent interval, thus the value can be chosen to yield a third data rate that is higher than the first data rate, thus when the weight of the output queue has been updated with the lower value, a third instantaneous rate is created).

Regarding claim 10:

8. Pankaj discloses an apparatus (see Figure 2A, references 4 and 10 together) associated with a wireless infrastructure (as shown by links 52, 50 in Figure 2A) that optimizes a rate of transmitting forward link data to a wireless mobile device across a forward radio frequency link (col. 9 lines 31-67 through col. 10, lines 1-5, where the selection of G can be selected for enhancing the overall efficiency of the forward link to a remote station). Pankaj discloses an output queue that stores forward link data to be transmitted to the wireless mobile device (see Figure 2A, reference 40, where the queue stores data from the data source 20 to be transmitted to the wireless device via forward link 50). Pankaj discloses a processor programmed to adjust a rate of forward link data transmission based on a weighted average queue value for the output queue (col. 9, lines 11-38, where "the processor is capable of performing the algorithms described herein" and the adjustment of the data rate is based on an algorithm for the updating the weights of a queue where the data rate is increased or decreased if the queue value is below or above a certain threshold).

Regarding claim 12:

9. Pankaj discloses "the processor is capable of performing the algorithms described herein", col. 9, lines 11-17. Pankaj discloses transmitting data packets from an output queue to a wireless mobile device across a forward radio frequency link (see Figure 2A, reference 24, where the packet network interface provides packets to the data queue 40. The data queue outputs the packets to be transmitted to a wireless device across forward radio frequency link 50) of an associated spread-spectrum communications system (col. 5, lines 44-50, where the interleaved packet is covered with a Walsh code, and spread with the short PNI and PNQ codes. The spread data is provided to RF unit and the forward link signal is transmitted over the air through the antenna.). Pankaj discloses determining a weighted average level of the output queue while transmitting a data packet at a first data rate (col. 9, lines 18-25, where a process is performed for updating the weights of the queues. The first instantaneous rate (transmitting data packets at a first data rate) of the weighted/selected queue is determined, hence a weighted average level of the output queue is determined since an instantaneous rate is associated with weight of the queue as indicated by col. 10, lines 6-9), transmitting a subsequent data packet at a second data rate (second instantaneous rate) that is lower than the first data rate when the weighted average level of the output queue is below a low threshold value (col. 9, lines 31-38, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue does not exceed the threshold (average rate of all the queues), hence the weighted average level of the output queue does not exceed the threshold's weighted average level of all the queues, the weight of the

queue is incremented by a higher value preferably a multiple of "G" where G can be chosen to enhance the overall efficiency of the forward link, col. 9, lines 39-67 through col. 10, lines 1-5, thus G can be chosen to yield a second data rate that is lower than the first data rate, thus when the weight of the output queue has been updated with the G value, a second instantaneous rate is created), and transmitting a subsequent data packet at a third data rate that is higher than the first data rate when the weighted average level of the output queue is equal to or above a high threshold value (col. 9, lines 25-31, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue exceeds the threshold (average rate of all the queues), hence the weighted average level of the output queue exceeds the threshold's weighted average level of all the queues, the weight of the queue is incremented by a lower value, the number representing the quantity of data to be transmitted during the subsequent interval, thus the value can be chosen to yield a third data rate that is higher than the first data rate, thus when the weight of the output queue has been updated with the lower value, a third instantaneous rate is created).

### *Claim Rejections - 35 USC § 103*

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 6, 7, 15, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,393,012 (Pankaj) in view of U.S. Patent No. 6,744,808 (Walley et al.).

Regarding claims 6, 7:

12. Pankaj discloses substantially all the claimed invention as specified above, however, does not disclose expressly determining a transport protocol of data packets received from an upstream component of the associated spread-spectrum communication systems, selecting a parameter set from a plurality of predetermined parameter sets based on the transport protocol, each parameter set containing parameter values for determining one or more of the weighted average level of the output queue, the second, and the third data rate, and that determining an input data rate for data packets received from an upstream component of the associated spread-spectrum communications system wherein determining the second data rate is based on the input data rate and wherein determining the third data rate is based on the input data rate.

Walley et al. discloses a spread-spectrum communication system (see Figure 8), where an input data rate (hence the particular data rate is associated with a particular transport protocol) is determined from an upstream component (see Figure 8, reference 801) wherein the transmit controller is able to determine that the data rate must be increased to support the present input data rate (col. 9, lines 36-56, hence the third data rate is based on the input data rate, and likewise the data rate could be decreased, where the second data rate is based on the input data rate). The transmit controller

thus selects increasing or decreasing the data rate (parameter set), where the increasing or decreasing the data rate (parameter set) is predetermined based on the input data rate (where the particular data rate is associated with a particular transport protocol). When the data is decreased a second data rate is formed, when the data is increased a third data rate is formed.

A person of ordinary skill in the art would have been motivated to employ Walley et al. in Pankaj in order to obtain a spread-spectrum communication system that uses the input data rate (based on a transport protocol) as a factor in adjusting the output data rate for queue and when the data rate is increased or decreased, the weighted average level of the output queue can be determined (since the data rate is associated with the weighted average level of the queue as stated earlier). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Walley et al. with Pankaj (collectively Pankaj-Walley et al.) in order to obtain the invention specified in claims 1 and 6 and in claims 1 and 7. The suggestion/motivation to do so would have been to use the input data rate (or the associated data rate of the transport protocol) as factor since the queue may not be able to support the present input data rate and may eventually exceed the memory available to support it (Walley et al. col. 9, lines 44-45).

Regarding claims 15, 16:

13. Pankaj discloses substantially all the claimed invention as specified above, however, does not disclose expressly an input buffer and where the processor is further

programmed to adjust the rate of forward link data transmission based also on an input data rate (or the transport protocol) of the forward link data received at the input buffer.

Walley et al. discloses an input queue (see Figure 8, reference 803) that acts as a buffer for the transmit controller (col. 9, lines 37-38). Walley et al. discloses adjusting the data rate based on an input data rate (where a particular data rate is associated with a particular transport protocol) of the forward link data received at the input buffer wherein the transmit controller is able to determine that the data rate must be increased to support the present input data rate (col. 9, lines 36-56, where forward link data is received at the input queue (buffer) 803 from the data input controller 801).

A person of ordinary skill in the art would have been motivated to employ Walley et al. in Pankaj in order to obtain a processor that takes into account the input data rate (or the transport protocol, since a particular data rate is associated with a particular transport protocol) of the forward link data received at the input buffer. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Walley et al. with Pankaj (collectively Pankaj-Walley et al.) in order to obtain the invention specified in claims 10 and 15 and in claims 10 and 16. The suggestion/motivation to do so would have been to have the processor to take into account the input data rate (or the transport protocol, since a particular data rate is associated with a particular transport protocol) of the forward link data received at the input buffer since that the queue (buffer) may not be able to support the present input data rate (or the associated data rate of the transport protocol) and

may eventually exceed the memory available to support it (Walley et al. col. 9, lines 44-45).

Regarding claim 19:

14. Pankaj discloses a method for transmitting data packets (data transmission) from an output queue (which is part of a wireless infrastructure, reference 4, Figure 2A) to a wireless mobile device across a forward radio frequency link (see Figure 2A, reference 24, where the packet network interface provides packets to the data queue 40. The data queue outputs the packets to be transmitted to a wireless device across forward radio frequency link 50) of an associated spread-spectrum communications system (col. 5, lines 44-50, where the interleaved packet is covered with a Walsh code, and spread with the short PNI and PNQ codes. The spread data is provided to RF unit and the forward link signal is transmitted over the air through the antenna.). Pankaj discloses finding the instantaneous rate associated with the queue (col. 9, lines 23-25, where the initial instantaneous rate before applying the weight to the queue (instantaneous rate before first instantaneous rate) yields the current size of the queue, since the weight of the queue is associated with the instantaneous rate and where the initial instantaneous rate has no weight). Pankaj discloses determining a weighted average level of the output queue while transmitting a data packet at a first data rate (col. 9, lines 18-25, where a process is performed for updating the weights of the queues. The first instantaneous rate (transmitting data packets at a first data rate) of the weighted/selected queue is determined, hence a weighted average level of the output queue is determined since an instantaneous rate is associated with weight of the queue

as indicated by col. 10, lines 6-9), transmitting a subsequent data packet at a second data rate (second instantaneous rate) that is lower than the first data rate when the weighted average level of the output queue is below a low threshold value (col. 9, lines 31-38, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue does not exceed the threshold (average rate of all the queues), hence the weighted average level of the output queue does not exceed the threshold's weighted average level of all the queues, the weight of the queue is incremented by a higher value preferably a multiple of "G" where G can be chosen to enhance the overall efficiency of the forward link, col. 9, lines 39-67 through col. 10, lines 1-5, thus G can be chosen to yield a second data rate that is lower than the first data rate, thus when the weight of the output queue has been updated with the G value, a second instantaneous rate is created), and transmitting a subsequent data packet at a third data rate that is higher than the first data rate when the weighted average level of the output queue is equal to or above a high threshold value (col. 9, lines 25-31, where if the first instantaneous rate (which is associated with the weighted average level of the output queue as indicated above) of the queue exceeds the threshold (average rate of all the queues), hence the weighted average level of the output queue exceeds the threshold's weighted average level of all the queues, the weight of the queue is incremented by a lower value, the number representing the quantity of data to be transmitted during the subsequent interval, thus the value can be chosen to yield a third data rate that is higher than the first data rate, thus when the weight of the output queue has been updated with the lower value, a third

instantaneous rate is created). Pankaj discloses transmitting the data in packets to the wireless mobile device via the forward link at the forward link data transmission rate (see Figure 2A, where the packets from the queue are to be transmitted across forward link 50 to a remote station, where the data transmission rate (the instantaneous rate) was determined based upon the threshold value). However, Pankaj does not disclose expressly otherwise leaving the data rate for the forward link data transmission unchanged.

Walley et al. discloses if the queue maintains an average size, then the transmit controller can support that data rate. (col. 9, lines 40-42, hence the data rate for the forward link data transmission is unchanged).

A person of ordinary skill in the art would have been motivated to employ Walley et al. in Pankaj in order to have a system that maintains the current data rate if the queue maintains an average size. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Walley et al. with Pankaj (collectively Pankaj-Walley et al.) in order to obtain the invention specified in claim 19. The suggestion/motivation to do so would have been to maintain the current data rate since the queue is not overflowed or underflowed, thus is operating at an efficient rate.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

*Hwang et al. discloses a method and apparatus for controlling asymmetric

dyanamic radio bearers in mobile packet data communications system

*Basu et al. discloses a system and associated method of operation for managing bandwidth in a wireless communication system supporting multimedia communications

*Davis discloses an asynchronous transfer mode data transmission system

*Jeffries discloses a method and system for providing optimal discard fraction

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brad T. Mace whose telephone number is (571) 272-3128. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

btm

Brad T. Mace
Examiner
Art Unit 2663

RICKY NGO
PRIMARY EXAMINER

btm

August 25, 2004